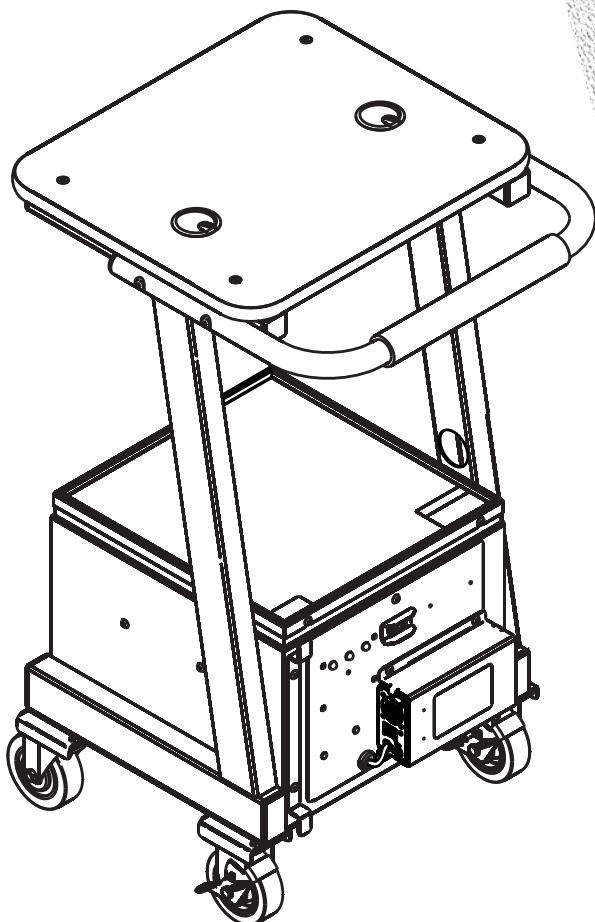


# Operating Instructions

Monarch™  
9878™ Compact  
Mobile  
Work Station  
(MWS™)



Each product and program carries a respective written warranty, the only warranty on which the customer can rely. Paxar reserves the right to make changes in the product, the programs, and their availability at any time and without notice. Although Paxar has made every effort to provide complete and accurate information in this manual, Paxar shall not be liable for any omissions or inaccuracies. Any update will be incorporated in a later edition of this manual.

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### **WARNING**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RF Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference including interference that may cause undesired operation of the device.

### **CANADIAN D.O.C. WARNING**

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

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Avery Dennison Printer Systems Division  
170 Monarch Lane  
Miamisburg, Ohio 45342



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# GETTING STARTED

1

Use the Monarch 9878 Compact Mobile Work Station (MWS) for mobile printing either in-store or in retail centers.

The in-store models have only one battery (12VDC) allowing you to scan and mark items directly on the sales floor. The two-battery (24VDC) models provide more power for larger printers. The Compact MWS models are light, easy to roll and turn.

You see references to voltages throughout this manual with either (one battery) or (two batteries) after them, so you know which voltage applies to your MWS.

## Using This Manual

---

Following is a summary of the contents of this manual.

| Chapter                  | Contents  |
|--------------------------|---|
| 1 Getting Started        | Contains information about the batteries and MWS.                           |
| 2 About the MWS          | Describes how to connect power cords and use additional devices on the MWS. |
| 3 Charging the Batteries | Describes how to charge the batteries.                                      |
| 4 Power Options          | Describes battery power and battery safety issues.                          |
| 5 Printing               | Explains how to print supplies from a printer on the MWS.                   |
| A Specifications         | Technical specifications about the MWS.                                     |

## **Safety Precautions**

Following symbols are used in this manual to show importance of using the MWS safely.

|   |   |
|---|---|
| <b>WARNING</b>  | Failure to follow the guidelines marked with this symbol could result in serious personal injury or death.        |
| <b>CAUTION</b>  | Failure to follow the guidelines marked with this symbol could result in minor personal injury or product damage. |
|  | Caution, risk of electrical shock.<br>Also known as the "High Voltage" symbol.                                    |

## **Audience**

This manual is designed for the person using the MWS for mobile printing applications.

After you receive the MWS, you should have all the necessary parts, including the batteries and charger. **Check inside ALL packaging material.** Make sure you do not throw away any pieces. Keep the boxes and packaging material in case the MWS ever needs repair.

## **Ordering Programmer's Manuals**

The *Packet Reference Manual*, which describes how to create format and batch packets for printing labels, how to configure a Monarch® printer online, and how to perform other advanced techniques is available from our Web site.

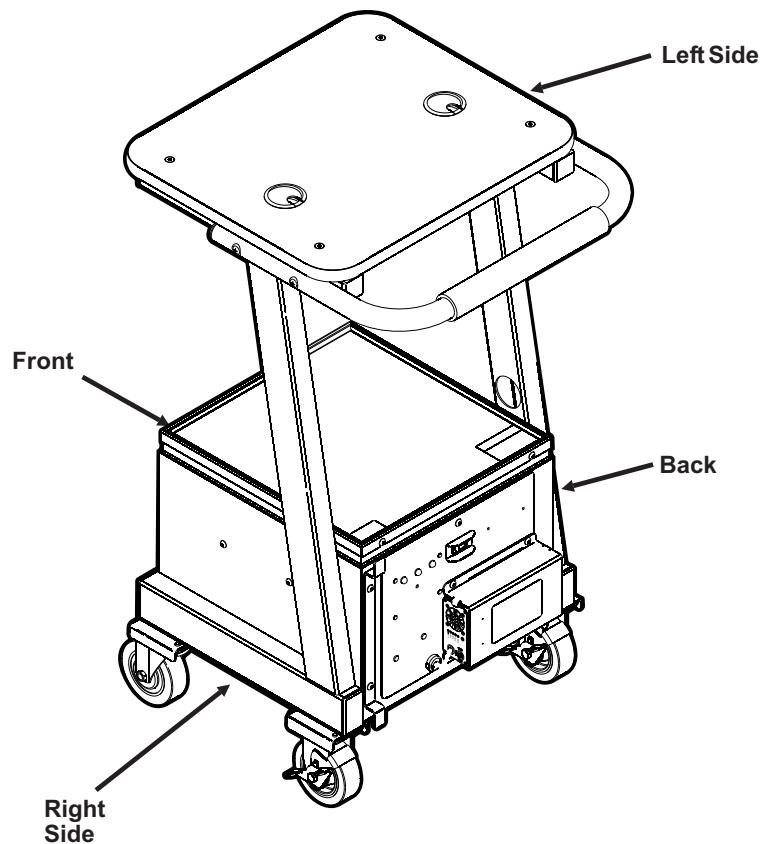
## **Calling Service**

If these solutions do not work or you have a problem not listed, see your System Administrator or call Service at the number listed on the back of this manual.

# ABOUT THE MWS

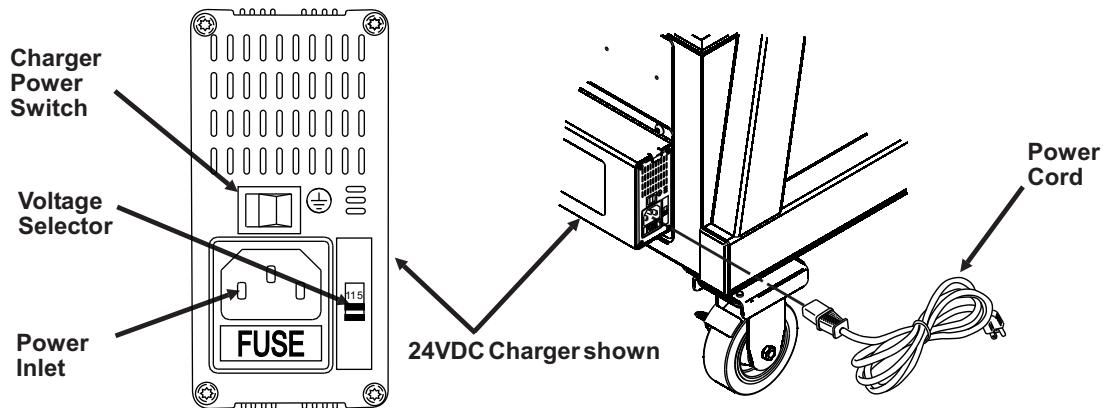
2

The Compact Mobile Work Station is shipped assembled. Use this chapter to verify the cable connections.

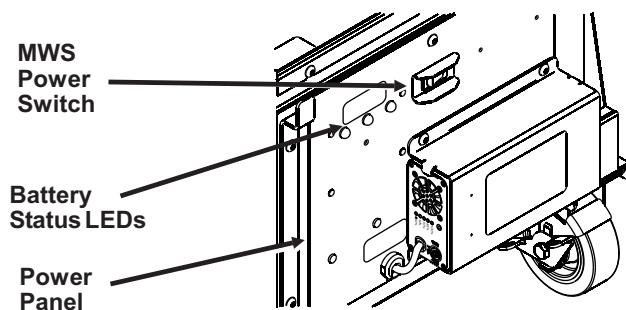


## Connecting the Power Cord

Make sure to set the proper voltage on the charger voltage selector switch on the right side of the charger (115V in U.S. or 230V International). Incorrect voltage selection can result in charger failure. Connect the charger's power cord to the power inlet. Power cords are not included with International models. The charger's power switch is also on the right side.



The battery's status LEDs are located on the left side of the Power Panel. The MWS Power Switch is to the right of the LEDs. See Chapter 3, "Charging the Batteries" for more information.



**Do not** plug the external power cord into a wall outlet until you are ready to charge the battery. See Chapter 3, "Charging the Batteries" for important battery information.

## **Connecting an AC Device**

---

Contact your Monarch Representative for instructions on connecting a UL/CSA listed power strip to the inverter for an additional device.

**Do not store the power strip or anything else inside the power cabinet. The power cabinet must remain secured at all times and only opened by qualified service personnel.**

## **Connecting a Printer**

---

Contact your Monarch Representative for instructions on attaching a Monarch® printer to the MWS.

### **Using other Monarch® Printers**

Contact your Monarch Representative for instructions on connecting Monarch® 9462™ and Monarch® 9465™ chargers to the MWS. This allows you to keep the chargers close to where you are working on the sales floor. For more information about using your 9462 or 9465 charger, refer to the *Operating Instructions* provided with the charger.

The following printers are supported with these chargers:

- Monarch® Sierra Sport2™ (9460™)
- Monarch® Sierra Sport3™ (9433™)
- Monarch® Pathfinder® Ultra® Silver (6032™)
- Monarch® Pathfinder® Ultra® Platinum (6039™)

Additionally, a laptop or handheld computer (terminal) can be powered on the MWS.

### **Using Other Printers**

Contact your Monarch Representative to attach non-Monarch printers to the Compact MWS.



# CHARGING THE BATTERIES

3

The Compact MWS' battery charger is a fully automatic, maintenance-free charger.

## CAUTION

The charger power switch does not control the MWS power. The MWS power switch located on the power panel controls power to the cart and connected devices.

To charge the battery, plug the MWS' AC power cord into a grounded outlet. Turn On the charger, charge the battery:

before using the MWS for the first time (over-night charge is recommended)

when the MWS beeps (see "Battery Life" for indications of low battery conditions)

when the MWS is not in use

When the MWS is not in use, always leave the battery charger plugged in and charging. The battery charger is "intelligent;" it monitors the battery condition and does not overcharge the lead acid battery. Battery life is extended by frequent charging.

Recycle batteries in accordance with local State, RBRC guidelines, and the manufacturer's instructions.

## CAUTION

Only qualified service personnel may install or replace the 12-volt sealed lead-acid non-venting battery. **When replacing a battery, you must use the same type of battery from the same manufacturer** (as the ones provided with the MWS). On 24VDC models, BOTH batteries MUST be replaced at the same time to maintain capacity match.

## Important Charging Information

---

### **WARNING**

**DANGER! RISK OF ELECTRICAL AND FIRE HAZARD.  
CERTAIN ACTIONS MAY RESULT IN DEATH, SERIOUS  
INJURY, SHOCK, OR BURNS.**

**Do not** disassemble the battery charger.

**Do not** operate the charger if it has been dropped or otherwise damaged in any way. **Do not** spill liquids into the charger, such as water or soft drinks.

**Do not** expose the battery charger to rain or snow. Never charge a frozen battery. The colder the battery, the longer it takes to charge.

Plug only into a three-prong grounded outlet. **Do not** alter the AC power cord or plug provided. **Do not** operate the battery charger with a damaged cord or plug.

**Do not** let the battery go for a long period in a partly discharged state; keep it charged. Recharge time is about 10 hours.

If using an extension cord, you must use 18 gauge or heavier for lengths up to 50 feet, or 16 gauge or heavier for lengths up to 100 feet. Use of improper extension cord could cause fire and/or electric shock. Use an extension cord bearing the UL listing mark and rated for four Amperes or greater current capacity.

Pull on the plug rather than the cord when disconnecting the battery charger. Locate the cords where they will not be stepped on, tripped over, or otherwise subjected to damage or stress.

The battery must be charged when the total voltage is less than 11.25V (one battery) or 22.5V (two batteries). See "Battery Life," for more information.

### **CAUTION**

Never smoke or allow a spark or flame in vicinity of battery.

---

## About the Battery Status LEDs

The charger is mounted on the Power Panel. The MWS Battery Status LEDs are located on the top-left side of the Power Panel. To use the Battery Status LEDs, the MWS must be on. The MWS Battery Status LEDs provide the most accurate indication of battery status.

Store the MWS in a dry area not subject to prolonged sub-zero temperatures.

The "intelligent" battery charger monitors the batteries condition and does not overcharge the batteries. It is recommended to leave the battery charger plugged in and charging when the MWS is not in use. Battery life is extended by frequent charging.

The Green Full Charge LED on the Power Panel blinks when the battery is finished (or near finished) charging. Leaving the charger connected to the battery and plugged in (MWS power off) prevents the battery from self-discharging.

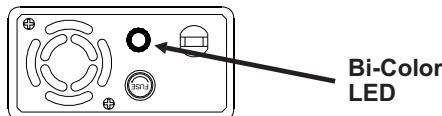
12 Volt switch levels = +/- 0.15V; 24 Volt switch levels = +/- 0.25V

## About the Battery Charger

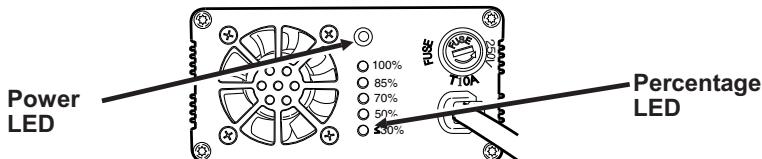
When charging the batteries with the MWS powered Off, use the charge indicator on the left side of the charger. The 12VDC and 24VDC chargers display battery status differently.

The 12VDC charger's bi-color LED displays the following:

|                              |  |
|------------------------------|--|
| <b>Red</b>                   | Charging process has started (fan on).   |
| <b>Flashing Green (Slow)</b> | Charging is in process, but not fully charged.   |
| <b>Green</b>                 | Batteries are fully charged (fan off), and the charger switches between pulse-charge and charge. |
| <b>Flashing Green (Fast)</b> | The charger is not properly connected to the batteries.  |



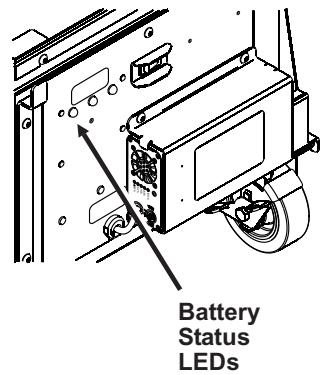
The 24VDC charger has a Power LED and five Percentage LEDs. When the charger is turned off (power LED off), the percentage LED shows battery status. The percentage LED flashes while charging to display battery status. When the batteries are fully charged, the 100 percent LED stays on.



## Battery Life

If you leave the battery charger plugged in and constantly charging **when the MWS is not in use**, the battery life is maximized for the application. The charger does not overcharge the batteries.

The MWS has Battery Status LEDs to indicate the battery status as follows (MWS power ON). The following voltages are nominal (not exact) and should be used for reference.



### **Flashing Red**

Warning! The batteries need immediate charging. Voltage is below 11.25V (one battery) or 22.5V (two batteries). The MWS beeps (10 seconds beep on and five minutes no beep) to alert you of this condition.

### **Flashing Yellow**

Caution! The batteries are getting low. The voltage is between 11.25V and 11.75V (one battery) or 22.5V and 23.5V (two batteries).

### **Flashing Green**

Go! The voltage is above 11.75V (one battery) or 23.5V (two batteries). The batteries are charged to approximately 75% or better capacity.

Immediately plug the power cord into the wall socket and charge the batteries when you hear a beep/chirp and the signal light flashes Red.

## **Frequency of Charging/Run-Time Guidelines**

---

**The following information is approximate and should be used for reference.** Many factors effect an individual battery's performance:

- the presence of auxiliary devices.
- the printing rate (including printhead contrast and number of labels per day).
- the complexity of your printed formats.
- the environment (temperature and humidity in your facility).
- the type of power supply a printer has.

In the information below, "typical conditions" are defined as follows:

one Monarch® printer printing standard compliance 4x6 labels (5-10 minutes of actual printing per hour), no auxiliary devices attached to the MWS, and standard environmental conditions (no excessive heat or humidity).

When using the 12VDC/115VAC MWS with an AC Power Inverter under typical conditions, the batteries may last up to 24 hours before recharging is necessary.

When using the 24VDC/115VAC MWS with an AC Power Inverter under typical conditions, the batteries may last up to 100 hours before recharging is necessary.

When you notice the batteries need to be charged more frequently, order replacement batteries. **On 24VDC models, BOTH batteries MUST be replaced at the same time to maintain capacity match.**

For example, if you had 60 hours of use between charges and now have 30 hours of use between charges, this is an indication that the batteries need replacing.

---

The performance of your batteries varies depending on the number of printers and/or auxiliary devices, such as a scanner or terminal, attached to the MWS unit. Frequent charging of the batteries is recommended.

---

### **3-6 Charging the Batteries**

# POWER OPTIONS

4

Your MWS was ordered with **one** of these power options:

12VDC/115VAC 300W AC Power Inverter

24VDC/115VAC 300W AC Power Inverter

---

Keep the MWS' power switch ON when in use. If the MWS will be unused for extended periods of time, turn OFF the MWS' power switch.

The MWS' power switch controls the power to all devices on the MWS. If using more than one printer on the MWS, manually turn OFF each printer's power switch.

## About the Inverter

---

The AC power inverter uses battery power, which may require more frequent charging of the batteries.

The AC power inverter provides 115V power to peripherals, such as a PC, scanner, charger, or printer.

### **WARNINGS**

This equipment contains components which can produce arcs or sparks. To prevent fire or explosion, do not install near Flammable materials or in locations that require ignition-protected equipment (including gasoline-powered machinery, fuel tanks, joints, or fittings).

The inverter is designed to operate from a battery. **Performance cannot be guaranteed and damage can result when the inverter is used without the batteries installed!**

Even if the MWS is not connected to an outlet, power is still supplied to the inverter from the batteries and charger. Therefore, **all harnesses are always “live.”**

You may observe a spark when you make this connection. Do not make this connection in the presence of Flammable fumes, explosion or fire may result. Operation of the inverter without a proper ground connection may result in an electrical safety hazard.



You may need a UL/CSA listed power strip for the MWS to provide AC power to more than one device. **Do not** store anything inside the power cabinet. The power cabinet must remain secured at all times and only opened by qualified service personnel.

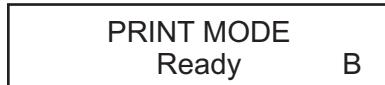
**CAUTION**  
Risk of  
electrical  
shock.

# PRINTING

To print supplies from a Monarch® 9825 or 9855 printer on the MWS, using the 24VDC model is recommended:

1. Turn on the MWS' power supply and turn on the printer.

You see



2. Press **Feed/Cut** to calibrate the supply. You are now ready to print.

To conserve the battery, make sure the MWS' power switch is turned OFF when not in use OR when charging the batteries. For optimal (shortest) charging time, turn off the MWS and printer while charging.

If you need to finish a batch, you can print while charging, as long as the batteries are not too depleted. However, printing while charging is **not** recommended on a frequent basis.

If the printer will be unused for extended periods of time, we recommend leaving the printhead unlatched.

If the printer's green power light blinks, you need to recharge the battery. There is a small reserve of battery power to continue printing after the green power light begins blinking.

You must recharge the battery when you see error 762 or "Battery Dead" on the display because the printer is in a "lock-up" condition and does not print until the battery is recharged.

The printer may slow down if the battery voltage drops below a certain level. The printer continues to print at the reduced speed until the batteries are charged and the printer is turned off and then back on. See "Battery Life" in Chapter 3 for more information about charging the batteries.

## About Sleep Mode

---

To conserve the MWS batteries, the printer's sleep mode extends run time.

If the Monarch® 9800 printer is inactive for longer than 30 seconds, the printer goes into sleep mode to conserve battery power. While in sleep mode, the display backlight is turned off to conserve battery power. Once the printer "wakes up," the backlight turns on.

To "wake up" the printer, press any button on the control panel. The buttons are active during sleep mode, so if you press **Escape/Clear**, the printer "wakes up" and you enter the offline menu mode. You can also send any data to the printer to wake it up. You do not lose any data sent to the printer during sleep mode.

# SPECIFICATIONS

A

## Mobile Work Station (MWS)

|  |   |
|--|---|
| <b>Height:</b>                               | Approximately 37 inches (940 mm)<br>depending on selected options |
| <b>Top Width:</b>                            | 20.5 inches (521 mm)  |
| <b>Wheel Base:</b>                           | 18 inches (457 mm)  |
| <b>Length:</b>                               | 22 inches (559 mm)  |
| <b>Power Cabinet</b><br><b>Lower Shelf:</b>  | 15 inches wide x 16 inches long<br>(381 mm x 406 mm)              |
| <b>Top Shelf :</b><br><b>(Laminated Top)</b> | 20 inches wide x 16 inches long<br>(508 mm x 406 mm)              |
| <b>Weight:</b>                               | Approximately 115 lbs (52 kg)<br>depending on selected options    |
| <b>Operating Limits</b>                      | 40 F to 104 F (5 C to 40 C) with thermal transfer supplies        |
| <b>Storage:</b>                              | 40 F to 140 F (5 C to 60 C)                                       |
| <b>Humidity:</b>                             | 5% to 90% non-condensing  |

## **Batteries**

---

(1) 12-volt, 55 amp-hour, deep cycle battery

(2) 12-volt, 55 amp-hour, deep cycle batteries

Sealed lead-acid, non-venting (safety venting only), no transportation restrictions

Shelf Life/Charge Retention:

|          |     |
|----------|-----|
| 1 month  | 97% |
| 3 months | 91% |
| 6 months | 85% |

Cycle Use:

|                         |                     |
|-------------------------|---------------------|
| 100% depth of discharge | approx. 250 cycles  |
| 50% depth of discharge  | approx. 550 cycles  |
| 30% depth of discharge  | approx. 1200 cycles |

Cycle Life is approximate and many factors effect an individual battery's performance.

## **Chargers**

---

### **12VDC Models**

**Input**                    90-132 VAC @ 3.0 A  
                          180-264 VAC @ 1.5 A  
                          50/60 Hz  
                          IEC 320-C14 Connection

**Output**                    12 VDC, 7 Amps DC charging current

Reverse polarity and short circuit-proof

8 hour full charge, typical re-charge 3-6 hours

20-100 hour typical battery duration

Smart charging

## 24VDC Models

|               |   |
|---------------|---|
| <b>Input</b>  | 90-132 VAC @ 5.0 A<br>180-264 VAC @ 2.5 A<br>50/60 Hz<br>IEC 320-C14 Connection |
| <b>Output</b> | 24 VDC, 8 Amps DC charging current  |
|               | Reverse polarity and short circuit-proof  |
|               | 7 hour full charge, typical re-charge 3-6 hours                                 |
|               | 20-100 hour typical battery duration  |
|               | Smart charging  |

---

Use only NRTL-listed (National Recognized Testing Lab) accessories.

---

## Inverter

---

|                              |  |
|------------------------------|--|
| <b>Input Voltage</b>         | 10.5 to 15VDC (12V)<br>21 to 30VDC (24V) |
| <b>No Load Current</b>       | 0.24A (12V)<br>0.28A (24V)               |
| <b>Frequency</b>             | 60 Hz                                    |
| <b>Output Voltage</b>        | 110VAC +-5%                              |
| <b>Output Power</b>          | 300W RMS (continuous)                    |
| <b>Surge Power</b>           | 400W RMS (1 second)                      |
| <b>Output Waveform</b>       | Pure Sine Wave (THD <6%)                 |
| <b>Typical Efficiency</b>    | 89%                                      |
| <b>Operating Temperature</b> | 32 F to 105 F (0 C to 40 C)              |

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